1/29/76 - Rec'd by Hand delivery to Office by Larry Graves, Cabot

CAB-O-SIL® DIVISION

CABOT CORPORATION P. O. BOX 188, TUSCOLA, ILLINOIS 61953

TELEPHONE AREA CODE 217
TUSCOLA 253-3370
TELEX TUSCOLA 910-663-2542

Ward L Akers
Permit Section - Please log In & include all listed documents - Date Stamp all - W. Akers

January 28, 1976

Illinois Environmental Protection Agency
Division of Water Pollution Control
Permit Section
Springfield, Illinois 62706

Dear Sirs:

Herewith is transmitted four copies of the well completion report of our second disposal well constructed in accordance with design specifications approved by Construction Permit 1975-EA-497-1 dated July 16, 1975 and Supplement 1975-EA-497-2 dated September 8, 1975. The well completion report includes the following information.

Bound in one booklet

1. Drawing of the well "as built"; and pertinent data on the well.
2. Chronological report of the drilling operations prepared by Mr. Merle Williams covering the period September 16, 1975 through December 1, 1975.
3. Chronological report of the work performed on the well from December 1, 1975 through January 23, 1976.
4. Otis Engineering Corporations report on the injection test performed on January 12, 1976.
5. Talley sheets of the 10 3/4" casing, the 7 5/8" casing and the 4 1/2" Fibercast tubing as measured when each was run.

This transmittal also includes one complete set of the logs run during the construction of this well.

1/29/76 IGS has these logs per phone call to Ross Brower by Dellenbaugh

1. Schulemberger
   - Laterolog 10/19/75, 11/9/75, 12/1/75
   - Compensated Neutron-Formation Density 10/19/75, 11/9/75, 12/1/75
   - 4 Arm Caliper Survey 11/11/75 and 11/18/75

1/24/76 IGS does not have copies of these logs - ~~will~~

2. Birdwell
   Temperature Log 10/24/75 & 10/25/75 — 1/24/76 to locate Cement tops for determine top seal depth. & circ to top ~~will~~
   3 Dimensional Velocity Log 11/26/75—
3. Dresser Atlas Vertilog 12/18/75
4. Otis Engineering Corp Caliper Survey 12/18/75

It is our understanding that this constitutes the remainder of the information required to allow you to take action on our request for amendment of our operating permit 1975-EB-1316-OP to include operation of a second disposal well.

Your rapid consideration of this request will be appreciated.

Sincerely,

CABOT CORPORATION

Michael G. Fowler
Manufacturing & Plant Manager

ir

TELEPHONE 234-0000
AREA CODE 217

P. O. BOX 000

ROBERT W. OBORN
CONSULTING ENGINEER
MATTOON, ILLINOIS 61938

January 28, 1976

Mr. Michael G. Fowler
CABOT CORPORATION
P. O. Box 188
Tuscola, Illinois 61953

In Re: Cabot #2 Disposal Well

Dear Mr. Fowler:

The completion report for your new disposal well is attached. This report may be divided into five sections:

1. Three pages of well data, presenting the pertinent data and present status of all installed subsurface facilities. The first page is a modification of a drawing originally prepared by Mr. R. N. Johnson.

2. Mr. Williams' letter to you and an eight-page chronological report of the rotary drilling operations from September 16 through December 1, 1975.

3. A two-page chronological report of work performed on this well from December 1, 1975, through January 23, 1976.

4. Otis Engineering Corporation's three-page report of the injection test run by Otis and Dowell on January 12, 1976.

5. Six pages of the tallies of 10-3/4" casing, 7-5/8" casing, and 4½" Fibercast tubing as measured when each string was run.

It is intended that this report shall contain or refer to all data and materials involved in the drilling and completion of this well. Such things as the various logs and drill stem test reports have been referred to, but omitted because of the bulk of the material involved.

Eight copies of this report have been prepared. Six are presented herewith, one has been sent to Mr. Merle Williams in Mount Vernon, Illinois, and I have retained one for my files. We can readily prepare as many more copies as you wish.

Respectfully submitted

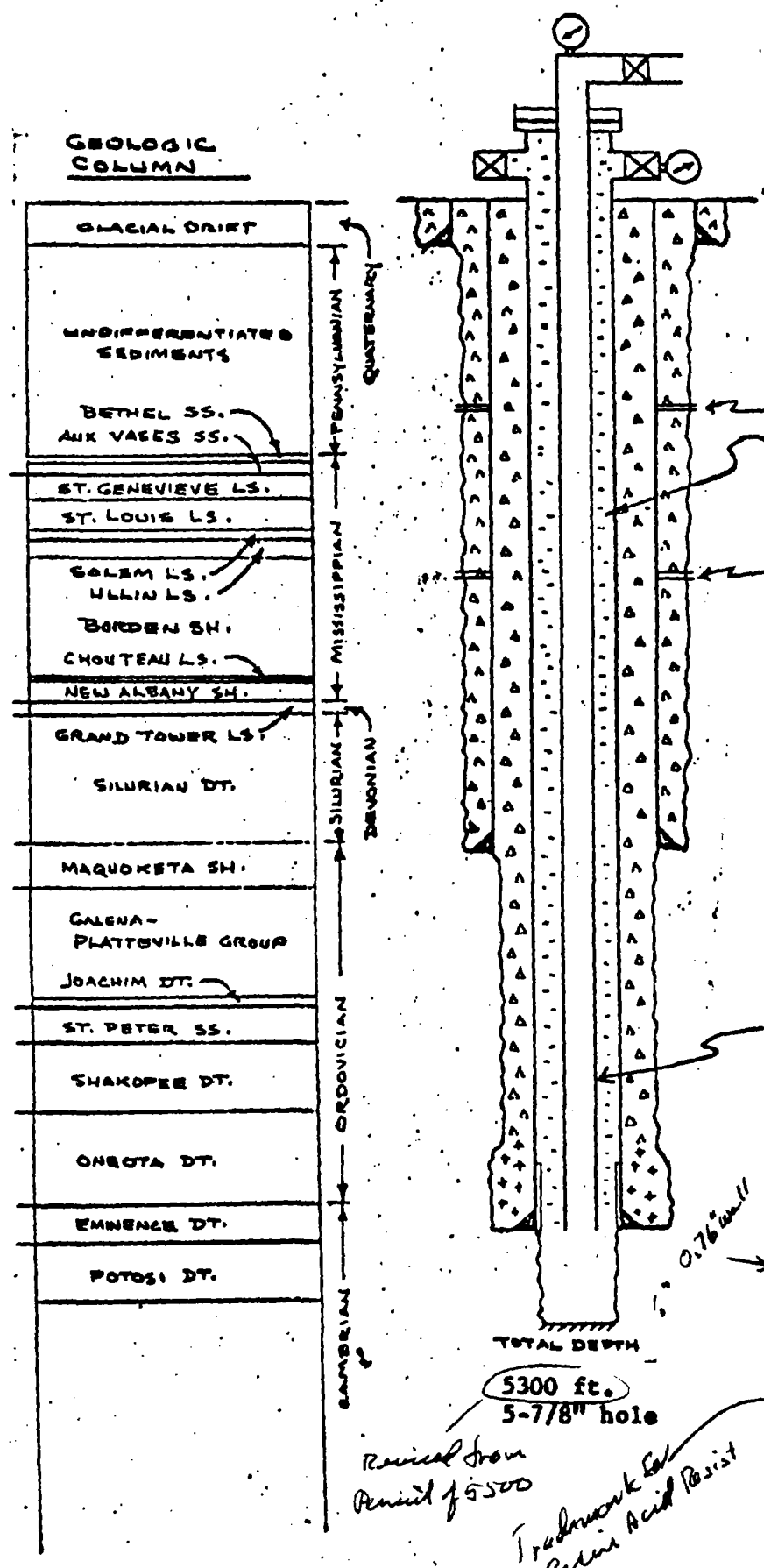
R. W. Oborn

RWO:hpe
enclosures

CABOT NO. 2 Page #1

WELL COMPLETION

1/28/76



Company CABOT CORP. Field TUSCOLA PLANT

Lease Cabot WELL NO. #2

Location 1235' N. x 571' W. SEc SW¼ SE¼ Sec. 31-16N-8E, Douglas County, Illinois

Elevation 690 GL 703.5 RT 705 KB* Valve

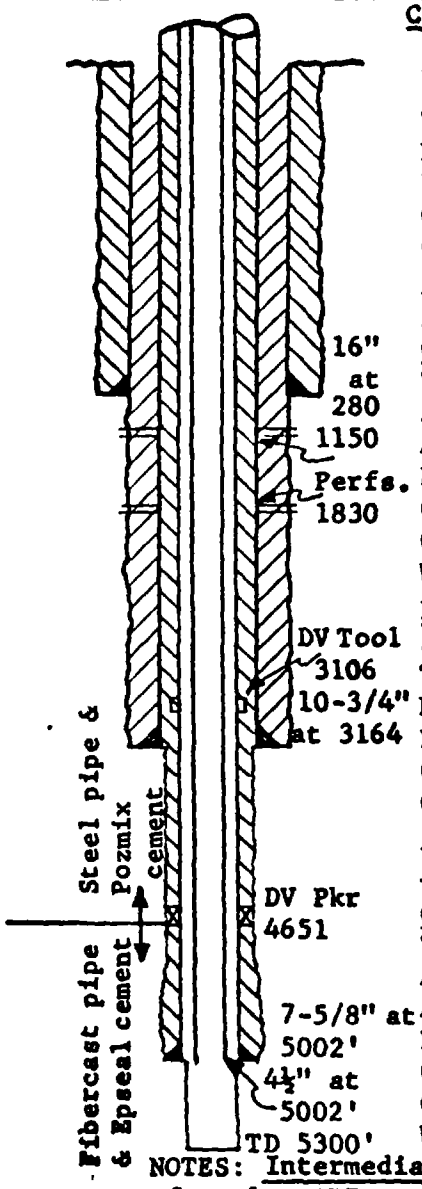
* Reference elevation Drilling Contractor Garden Drilling Company

Rig No. 5 Rig Type

No. & Size Bits 1 - 12¼; 1 - 19" rmr; 2 - 14-3/4"; 3 - 13-7/8"; 2 - 9-7/8"; 2 - 5-7/8"; 1 - 6-3/4" bit.

Date 9/18/75 Spud 12/2/75 Complete Depth 5300 RTTD CTTD PBTD

Well Type Disposal Formation Potosi



Casing Data

Surface Casing:
Size 16" Wt. 65 Gr.
Type Rge. 2
Mfr. Coat. Mill
Hole Size 19" Tally 279
Csg. Pt. 280 Date 9/20/75
Csg. Equip.

Cement Data:
Type Class A
Additives 2% CaCl
Amt. 275 sx
Head
Cem. Co. Hal.
Cem. Equip.
WOC 18 hr. TOC

Production Casing:
Size 7-5/8 Wt. Gr.
Type Rge.
Mfr. Coat.
Hole Size Tally
Csg. Pt. Date
Csg. Equip.
See Page #3

Cement Data:
Type See Page #3
Additives
Amt.
Head
Cem. Co.
Cem. Equip.
WOC TOC

NOTES: Intermediate string: 10-3/4", 40.5#/ft., J, smls. API csg. - Tally: 3174.26 ft. set at 3164 ft. - Used Hal. guide shoe & float collar 6 centralizers - 3-stage cement job. See Page #3.

Core Data

Int.		Fm.

Drill Stem Tests

Int.	Fm.
2510 - 3164	Silurian
3932 - 3975	St. Peter

Log Data

Open Hole: Log. Co.
Date 10/19, 11/9 & 12/1/75 Logs LL-GR, FDC - CNL Cal (3 runs) By SWS
Date 11/11 & 11/18/75 Logs Cal. (2 runs) by SWS

Cased Hole:
Date 11/26/75 Logs 3 D - CBL by BW
Date 12/17/75 Logs Caliper by Otis
Date 12/18/75 Logs Vertilog by DA
Date Logs

Stratigraphic Data*

Formation	Top	Datum
St. Genevieve	1453	- 748
Carper	2271	- 1566
Chouteau	2343	- 1638
Devonian	2454	- 1749
Silurian	2648	- 1943
Maquoketa	3153	- 2448
Galena	3370	- 2665
Decorah	3520	- 2815
Plattville	3530	- 2825
Joachim	3885	- 3180
St. Peter	3954	- 3249
Shakopee	4158	- 3453
Oneota	4619	- 3914
Eminence	4914	- 4209
Potosi	5104	- 4399

R. W. OBORN
CONSULTING ENGINEER

* Merle Williams, Consulting Geologist

CABOT #2

WELL DATA

INTERMEDIATE STRING:

Cemented by Halliburton 10/23/75 with 2500 sx reg. Pozmix A - no cement returns - ran Birdwell Temperature Log & found TOC at 1835 ft. - Perf. w/6 shots, 1830 to 1832.5 - circ. mud to cond. hole - cemented through perfs., 10/24/75 w/1600 sx lite cement - no cement returns - Ran Birdwell Temperature Log & found TOC at 1150 ft. - Perf. w/6 shots, 1150 to 1152 - circ. mud to cond. hole - cemented through perfs., 10/26/75 w/800 sx lite cement - circ. est. 300 sx cement to pit - WOC 10 hours on last stage - Hole size was 14-3/4" to 1594 ft. and 13-7/8" to csg. pt.

PRODUCTION STRING:

Set at 5002 feet - Bottom 10 jts. are 7-5/8", 12.78#/ft., .760 wall Fibercast pipe with Hal. float shoe and float collar on bottom, 1 jt. of steel casing above Fibercast, then DV packer tool set at 4651 feet, all steel casing is 7-5/8", 26.4#/ft., K-55, seamless API, DV stage tool was set at 3106 - hole size was 9-7/8" to 4690 feet - under-reamed to 5005 feet w/14" max. hole size - casing was first landed on 11/13/75 and first cement stage of 1500 gal. Hal. Epseal was pumped but plug failed to land in float collar and entire string was pulled - both the hole and the casing string were reconditioned and rerun as above on 11/20/75.

Hal. cemented 7-5/8" casing in three stages:

1st stage - 1500 gal. Epseal pumped through shoe of Fibercast casing.

2nd stage - 750 sx 50-50 Pozmix pumped through DV packer tool at 4651 feet after setting packer.

3rd stage - 750 sx 50-50 Pozmix pumped through DV stage tool at 3106 feet.

Excess cement was circulated to surface after each stage - W.O.C. 72 hours.

MERLE WILLIAMS
GEOLOGIST
P.O. BOX 701 - ONE HAWTHORNE HILLS
MT. VERNON, ILLINOIS 62864
TELEPHONE 618-242-0506

December 18, 1975

Mr. Michael G. Fowler
Cabot Corp.
Box 188
Tuscola, IL 61953

Re: #2 Waste Disposal Well

Dear Mr. Fowler:

Enclosed are Data Sheets on the #2 Waste Disposal Well. These summarize the daily drilling reports from September 16 through December 1, 1975. The drill-stem test of the St. Peter is described on October 30, and the log tops are shown on December 1.

The top of the Potosi was at 5104 feet. The Potosi was a light grey, finely crystalline dolomite with good porosity. Circulation was lost at 5161 feet, and the well was drilled to 5300 feet without returns.

The State's requirements have been met to the best of my knowledge. I kept Dr. T. L. Buschbach with the Illinois State Geological Survey informed while the well was being drilled. He witnessed the drill-stem test. I delivered a field print of each of the logs to him soon after they were run. He and I are in concurrence on the tops as shown on the Data Sheets. The drilling time report and samples of the well cuttings were taken to the Survey. Schlumberger was instructed to send final prints of the logs direct to the Survey. If the State wants any other information, let me know and I will provide it.

Sincerely,

Merle Williams

Merle Williams

MW/b

Encs.

Cabot Corp. #2 Waste Disposal Well

1235 SL 571 EL SW SE. 31-16N-8E

Douglas Co., IL Elev. 690 GL 704 DF 705 KB

9/16/75	Moved in rotary tools (Garden Rig 5).
9/17/75	Rigged up rotary tools.
9/18/75	Commenced drilling with 12 1/4-inch bit at noon.
9/19/75	Drilled 12 1/4-inch hole to 279 feet at 3:30 AM. Reamed 12 1/4-inch hole to 19 inches. Set and cemented 16-inch surface casing at 279 feet. Plug down 6:45 PM (Halliburton).
9/20/75	WOC.
9/21/75	Commenced drilling below 16-inch surface casing with 14 3/4-inch bit at 1 PM.
9/22/75	Drilling at 894 feet at 6:30 AM.
9/23/75	Drilling at 1210 feet. Bit 3 at 1210 feet.
9/24/75	Drilling at 1439 feet.
9/25/75	Drilling at 1566 feet.
9/26/75	Bit 4 at 1594 feet. Reduced hole size to 13 7/8-inch. Drilling at 1594 feet at 6:30 AM.

9/27/75	Drilling at 1714 feet.
9/28/75	Drilling at 1832 feet.
9/29/75	Drilling at 1909 feet.
9/30/75	Drilling at 1989 feet.
10/1/75	Drilling at 2057 feet. Drill pipe twisted off at 2105 feet.
10/2/75	Fished. Retrieved fish. Bit 5 at 2105 feet. Strapped drill pipe. Corrected from 2105 to 2109 feet.
10/3/75	Drilling at 2136 feet.
10/4/75	Drilling at 2229 feet.
10/5/75	Drilling at 2275 feet.
10/6/75	Drilling at 2328 feet.
10/7/75	Drilling at 2420 feet.
10/8/75	Drilling at 2483 feet.

Cabot Corp. #2 Waste Disposal Well

10/9/75	Drilling at 2514 feet.
10/10/75	Drilling at 2689 feet.
10/11/75	Drilling at 2795 feet.
10/12/75	Drilling at 2821 feet. Bit 6 at 2839 feet.
10/13/75	Drilling at 2845 feet.
10/14/75	Drilling at 2891 feet.
10/15/75	Drilling at 2932 feet.
10/16/75	Drilling at 2963 feet.
10/17/75	Drilling at 3017 feet.
10/18/75	Drilling at 3090 feet.
10/19/75	Drilling at 3159 feet. 3162 feet at 9:30 AM. Ran logs (Schlumberger).
10/20/75	Ran tubing on packer.

10/21/75	Rigged up cable tools. Swab tested.
10/22/75	Commenced running 10 3/4-inch casing.
10/23/75	Completed running 10 3/4-inch casing. Set and cemented casing at 3162 feet.
10/24/75	WOC.
10/25/75	Re-cementing.
10/26/75	Re-cementing.
10/27/75	Commenced drilling below 10 3/4-inch casing with 9 7/8-inch bit 7 at 2:30 PM.
10/28/75	Drilling at 3376 feet.
10/29/75	Drilling at 3680 feet.
10/30/75	3975 feet at 3:30 AM. Drill Stem Test (Halliburton) 3932-3975, 2 hours, recovered 580 feet of water. Initial Hydrostatic 1755 psig. Initial Flow 20 psig. Final Flow 269 psig. Final Closed-in 1483 psig. Final Hydrostatic 1752 psig. Water analysis, Chlorides 11,500 ppm & pH 9.6.
10/31/75	On bottom with same bit 7 after DST at 2:15 AM. Drilling at 4035 feet at 6:30 AM.

Date	Data
11/1/75	Drilling at 4255 feet.
11/2/75	Drill pipe twisted off st 1:25 AM at 4362 feet. Fished. Retrieved fish.
11/3/75	Commenced drilling with bit 8 at 12:55 AM at 4362 feet. Drilling at 4390 feet at 6:30 AM.
11/4/75	Drilling at 4531 feet.
11/5/75	Drilling at 4692 feet.
11/6/75	Drilling at 4863 feet.
11/7/75	5005 feet at 3:30 AM. Commenced under-reaming to 12-inch hole at 4690 feet at 9:25 PM.
11/8/75	Under-reaming at 4732 feet.
11/9/75	Under-reaming at 4914 feet. 5005 feet at 9:30 AM. Ran logs, second run (Schlumberger). Logging completed at 9 PM.
11/10/75	Commenced under-reaming again at 4803 feet at 3:45 AM. Under-reaming at 4865 feet at 6:30 AM.

Cabot Corp. #2 Waste Disposal Well

Date	Data
11/11/75	Under-reamed to 5005 feet at 6:00 AM. Ran Caliper log (Schlumberger).
11/12/75	Ran 7 5/8-inch casing to 5005 feet.
11/13/75	Cemented 7 5/8-inch casing (Halliburton). Displaced cement. Commenced pulling 7 5/8-inch casing.
11/14/75	Completed pulling casing.
11/15/75	Circulated and conditioned hole.
11/16/75	Completed conditioning hole.
11/17/75	Commenced under-reaming again. Under-reaming at 4807 feet at 6:30 AM.
11/18/75	Under-reaming at 4984 feet. 5005 feet at 9:45 AM. Ran Caliper log (Schlumberger)
11/19/75	Circulated and conditioned hole. Commenced running 7 5/8-inch casing.
11/20/75	Completed running 7 5/8-inch casing. Commenced cementing at 8:45 PM (Halliburton).
11/21/75	Second stage plug down at 11:15 AM.

Date	Data
11/22/75	WOC.
11/23/75	WOC
11/24/75	WOC.
11/25/75	Drilled DV tool and shoe with 5 7/8-inch bit 9.
11/26/75	Ran Cement Bond log (Birdwell)
11/27/75	Wait on stabilizers.
11/28/75	Commenced drilling at 5005 feet with 5 7/8-inch bit 10 at 2:33 AM. Drilling at 5031 feet at 6:30 AM.
11/29/75	Drilling at 5124 feet. Lost circulation at 5161 feet at 3:35 PM. Commenced dry drilling at 4:14 PM.
11/30/75	Dry drilling at 5221 feet at 6:30 AM.
12/1/75	Total Depth 5300 feet at 7:34 AM. Ran log, third run (Schlumberger). Log tops as follows:
	Ste. Genevieve 1453
	Carper 2271-2289

Date	Data	
	Chouteau	2343-2351
	Devonian	2454
	Silurian	2648
	Maquoketa	3153
	Galena	3370
	Decorah	3520
	Plattville	3530
	Joachim	3885
	St. Peter	3954
	Shakopee	4158
	Oneota	4619
	Eminence	4914
	Potosi	5104
	LTD	5293

CABOT #2

DISPOSAL WELL

CHRONOLOGICAL COMPLETION REPORT

12/1/75 SWS log showed DV tools 5-7/8" ID - ran 6-3/4" retip bit - reamed DV tools to full bore.

12/2/75 Pull bit - go in hole w/Otis 7-5/8" packer on 2-7/8" D.P. - set at 4325 ft. - release Garden rig.

12/3, 4/75 Moved out rotary tools.

12/5/75 Rigged up Otis rig - swab with 3/8" line.

NOTE: All reported water analysis by Cabot Lab. TDS by conductivity, Chloride by unfiltered titration, unless otherwise noted.

12/6/75 Swab - unable to go through internal upset D.P. w/light tools - swab 90 bbl. total - TDS 1256 pH 6.33 - released packer - laid down 50 joints drill pipe.

12/7/75 Shut down.

12/8/75 Run 48 joints 2-7/8" EUE, IF tubing - set packer at 4375 feet - rigged up 5/8" swab line - start swab 50 bbl/hr., 3:30 P. M. - swab cum. total 121 bbl. - TDS 8280, Cl 7400, pH 5.82

12/9/75 Swab 50 bbl./hr. for cum. total 445 bbl. TDS 11,970, Cl 8600, pH 5.86

12/10/75 Swab cum. total 864 bbl. - TDS 17,550

12/11/75 Swab cum. total 1288 bbl. at 3:00 P.M., TDS 16,740 (conductivity) TDS 16,248 (residue), Cl 10,400 (unfiltered), Cl 10,200 (filtered), pH 5.94 - this sample sent to Illinois Water Survey Laboratory - swab cum. total 1406 bbl - TDS 19,620, Cl 13,200, pH 5.79

12/12/75 Swab cum. total 1626 bbl. at 11:30 A.M. - TDS 18,900 (conductivity), TDS 24,856 (residue), Cl 14,300 (unfiltered), Cl 14,100 (filtered), pH 5.75 - swab cum. total 1900 bbl. - end swabbing - large sample distributed to State agencies - TDS 18,720, Cl 12,500, pH 5.76

12/13/75 Static fluid level inside tubing 246 feet below K.D. (formation water in hole) - Dunbar obtained bottom hole samples from 5134, 5160, 5200, 5260 and 5300 feet - all sent to Illinois EPA.

12/14/75 Pull and lay down tubing and packer.

CABOT #2 - DISPOSAL WELL
CHRONOLOGICAL COMPLETION REPORT - Page #2

12/15, 16/75 Attempt to run injection test - bad data due to erroneous pressure readings - static bottom hole temp. 112° at 5005 ft.

12/17/75 Ran Otis mech. caliper log 5002 ft. to surface - ran Dresser-Atlas Vertilog 4680 feet to surface.

12/18/75 Static fluid level 166.5 ft. below K.B. (fresh water in hole) - start to run 4½" Fibercast tubing - threads separated from 3 joints - shut down.

12/19/75 Pull 4½" tubing to return to Oklahoma - released Otis rig.

12/20/75 to 1/11/76 Shut down.

1/12/76 Static fluid level 166.15 ft. below K.B. (fresh water). Run injection test w/Dowell & Otis - pumped fresh water at 167 gpm, 284 gpm and 493 gpm for one hour each - ran pressure gradient in hole and left pressure bomb in hole overnite.

1/13/76 Pulled pressure recorder - see separate Otis report.

1/13, 19/76 Shut down.

1/19/76 Unloaded repaired and tested 4½" Fibercast tubing.

1/20/76 Rigged up L.Stone cable tool rig.

1/21, 23/76 Run 249 joints 4½" Fibercast tubing - land bottom at 5002 feet - land tubing hanger in head and seal w/positive hold down.

NOTE: Bottom Hole Pressure has been determined three ways on this well:

	BHP @ 5000 ft.	at 5200 ft.
1. Static fluid level at end of swabbing was 246 ft. Water in hole was 20,800 TDS. 20,800 TDS = 1.02 sp. gr. = .442 psi/ft.		
5000 - 246 = 4754 X .442 =	2102.3	
5200 - 246 = 4954 X .442 =		2189.7
2. Static fluid level at end of injection test with mostly fresh water in hole was 166 ft. Average pressure gradient determined by Otis was .435 psi/ft.		
5000 - 166 = 4834 X .435 =	2102.8	
5200 - 166 = 5034 X .435 =		2189.8
3. Otis bottom hole pressure bomb on 1/12/76	2102.0	2189.0

OTIS ENGINEERING CORPORATION
General Offices: Belt Line Rd. at Webb Chapel
P. O. Box 34380, Dallas, Texas 75234

PRESSURE SURVEY

COMPANY		MSO NUMBER	DATE RUN
Cabot Corporation			1/12/76
FIELD	**LEASE**	**WELL**	**SAND**
Plant	Plant	#2	
COUNTY OR PARISH		**STATE**	
Douglas		Illinois	

DESCRIPTION

ELEVATION	DATUM	PERFORATION			T.D.
16 AGL					
☐ SHUT-IN ☐ FLOWING HOURS —	FLUID LEVEL 166'	DEPTH REACHED 5200	TUBING PRESSURE 0	☐ DWT ☒ GAUGE	
SURFACE TEMP. 30 °F	MAX. TEMP. 112 °F	TUBING — IN.	TUBING DEPTH —	PACKER DEPTH —	SLANT HOLE NO

DEPTH OR TIME	PRESSURE PSIG	PRESSURE CHANGE	GRADIENT PSI / FT
0			
1,000	358	358	.358
2,000	796	438	.438
3,000	1233	437	.437
4,000	1667	434	.434
5,000	2102	435	.435
5,200	2189	87	.435

INSTRUMENT NUMBER: 26085

LAST CALIBRATION DATE: 1-9-75

PRESSURE SURVEY

DATE OF LAST SURVEY	LAST MAXIMUM	THIS MAXIMUM	CHANGE SINCE LAST SURVEY
—	—	—	—

CALCULATED BY: Troy D. Williams

REMARKS

1. Made above gradient stops while going in hole for pump test.

OTIS ENGINEERING CORPORATION
General Offices: Belt Line Rd. at Webb Chapel
P. O. Box 34380, Dallas, Texas 75234

PRESSURE SURVEY

COMPANY		MSO NUMBER	DATE RUN
Cabot Corporation			1-12-76
FIELD	**LEASE**	**WELL**	**SAND**
Plant	Plant	#2	—
COUNTY OR PARISH		**STATE**	
Douglas		Illinois	

DESCRIPTION

ELEVATION	DATUM	PERFORATION			T.D.
16 AGL					
☐ SHUT-IN ☐ FLOWING HOURS —	FLUID LEVEL 166	DEPTH REACHED 5200	TUBING PRESSURE 0	☐ DWT ☒ GAUGE	
SURFACE TEMP. 30 °F	MAX. TEMP. 112 °F	TUBING — IN.	TUBING DEPTH —	PACKER DEPTH —	SLANT HOLE NO

DEPTH OR TIME	PRESSURE PSIG	PRESSURE CHANGE	GRADIENT PSI / FT
	1st PUMP RATE (SEE REMARK #1)		
5200'	2189 PSIG	BHP at start of pump.	
5200	2191 PSIG	after pumping for 1 minute.	
5200	2191 PSIG	after pumping for 61 minutes.	
5200	2189 PSIG	after pump was stopped for 1 minute.	
5200'	2189 PSIG	after pump was stopped for 3 hours.	
	2nd PUMP RATE (SEE REMARK #2)		
5200'	2189 PSIG	BHP at start of pump.	
5200'	2191 PSIG	after pumping for 1 minute.	
5200'	2200 PSIG	after pumping for 3 minutes.	
5200'	2200 PSIG	after pumping for 61 minutes.	
5200'	2189 PSIG	after pump was stopped for 1 minute.	
5200	2189 PSIG	after pump was stopped for 3 hours.	

INSTRUMENT NUMBER: 26085

LAST CALIBRATION DATE: 1-9-76

PRESSURE SURVEY

DATE OF LAST SURVEY	LAST MAXIMUM	THIS MAXIMUM	CHANGE SINCE LAST SURVEY
—	—	—	—

CALCULATED BY: Troy D. Williams

REMARKS

1. 1st Pump Rate was 3.98 BBL/Min. or 167 gallons per minute-pumped 243 BBLS.
2. 2nd Pump Rate was 6.8 BBL/min. or 284 gallons per minute-pumped 413 BBLS.

OTIS ENGINEERING CORPORATION
General Offices: Belt Line Rd. at Webb Chapel
P. O. Box 34380, Dallas, Texas 75234

PRESSURE SURVEY

COMPANY: Cabot Corporation		MSO NUMBER:	DATE RUN: 1-12-76
FIELD: Plant	LEASE: Plant	WELL: #2	SAND:
COUNTY OR PARISH: Douglas		STATE: Illinois	

DESCRIPTION

ELEVATION: 16 AGL	DATUM:	PERFORATION:			T.D.:
☐ SHUT-IN ☐ FLOWING HOURS: —		FLUID LEVEL: 166'	DEPTH REACHED: 5200'	TUBING PRESSURE: 0	☐ DWT ☒ GAUGE
SURFACE TEMP.: 30°F	MAX. TEMP.: 112 °F	TUBING: — IN.	TUBING DEPTH: —	PACKER DEPTH: —	SLANT HOLE: NO

DEPTH OR TIME	PRESSURE PSIG	PRESSURE CHANGE	GRADIENT PSI / FT
	3rd PUMP RATE (SEE REMARK #1)		
5200'	2189 PSIG	at start of pump test.	
5200'	2191 PSIG	after pumping for 1 minute.	
5200'	2200 PSIG	after pumping for 3 minutes.	
5200'	2220 PSIG	after pumping for 5 minutes.	
5200'	2220 PSIG	after pumping for 1 hour.	
5200'	2189 PSIG	after pump was stopped for 1 minute.	
5200'	2189 PSIG	after pump was stopped for 1 hour.	
5200	2189 PSIG	after pump was stopped for 12 hours.	
		(Continous Pressure Reading of 2189 PSIG for 12 hours after pump was stopped.)	

INSTRUMENT NUMBER: 26085

LAST CALIBRATION DATE: 1-9-76

PRESSURE SURVEY

DATE OF LAST SURVEY	—
LAST MAXIMUM	—
THIS MAXIMUM	—
CHANGE SINCE LAST SURVEY	—

CALCULATED BY: Troy D. Williams

REMARKS

1. 3rd Pump Rate was 11.7 BBLS./Minute or 493 gallons per minute-pumped 716 BBLS.
2. Pressure Recorder pulled 12 hours after pump was stopped.

Co. CABOT CORP. Field TUSCOLA PLANT Well #2 Date 10/23/1975

Csg. Size 10-3/4 Wt. 40.5 Gr. J Range 2 Mfr. _____ New XXXXXX

Total csg. chg. to well _____ Run _____ Cut off or wasted _____ Trans. _____ to _____

Hole Size 13-7/8 14-3/4 & T.D. 3162 Csg. pt. 3162 KB to GL 16 KB to RT _____ Land. jt. below RT _____

Cent. Type Hal. Depth at Float & 3000', 2000', 2370', 1470', 800'

Scratchers Type - - - Depth _____

Fl. Equip. Hal. float col. & guide shoe Cem. Head Plug cont.

Cem. Type 3-stage (SEE COMPLETION REPORT) Amt. _____ Bulk _____ Cem. Sk Equip. _____ Cem. Co. Hal.

1	Sh 1 32	35 95	21	33	77	41	30	75	61	29	--	XXXX 81	XXXX 33	XXXX 32	Notes
2	Fl 2 33	25 44	22	34	83	42	32	03	62	31	30	82	33	75	
3	32	54	23	30	63	43	33	50	63	27	95	83	29	78	
4	33	43	24	31	11	44	32	45	64	32	55	84	30	97	
5	33	73	25	33	31	45	30	09	65	32	27	85	31	60	
6	32	97	26	32	95	46	32	17	66	33	48	86	31	12	
7	33	10	27	32	20	47	33	45	67	33	67	87	33	14	
8	30	07	28	32	32	48	30	41	68	33	46	88	31	73	
9	33	54	29	33	42	49	29	71	69	31	75	89	31	67	
10	33	83	30	33	52	50	30	87	70	33	24	90	32	20	
Sub Tot.	333	20		989	95		1640	24		2275	54		2920	25	
11	33	63	31	33	56	51	31	95	71	32	74	91	31	79	
12	30	50	32	33	36	52	30	67	72	31	05	92	33	15	
13	30	97	33	33	40	53	33	83	73	27	92	93	32	30	
14	33	34	34	33	38	54	32	90	74	33	57	94	33	28	
15	33	66	35	33	37	55	28	88	75	33	--	95	33	58	
16	32	15	36	33	56	56	32	50	76	31	96	96	30	68	
17	33	50	37	33	76	57	30	35	77	33	65	97	28	58	
18	33	70	38	33	39	58	31	76	78	33	70	98	20	20	
19	33	59	39	33	58	59	32	40	79	33	90	99	10	45	
20	33	65	40	33	50	60	31	39	80	33	94	100	3174	26	
Sub Tot.	661	89		1324	81		1956	87		2600	97				

Tally and job by
R. N. JOHNSON

NOTE: All casing tallies are measured "threads off"

R. W. OBORN
Consulting Engineer

Co. CABOT CORP. Field TUSCOLA PLANT Well #2 Date 11/19/1975

Csg. Size 7-5/8 Wt. 26.4 Gr. K Range 2 Mfr. _____ New XXXXXX

Total csg. chg. to well _____ Run _____ Cut off or wasted _____ Trans. _____ to _____

Hole Size 9-7/8 & Var. T.D. 5006 Csg. pt. 5002 KB to GL 16 KB to RT _____ Land. jt. below RT _____

Cent. Type Hal. Depth _____

Scratchers Type - - - Depth _____

Fl. Equip. Hal. Fl. Sh., Fl. Col., DV Pckr, DV Tool Cem. Head Plug cont.

Cem. Type 3-stage job (SEE COMPLETION REPORT) Amt. _____ Bulk _____ Cem. Sk Equip. _____ Cem. Co. _____

1	Sh 3 32	33 --	21 C	31	90	41	32	22	61	DV 3 29	21 20	XXXXXX Notes
2	30	80	22	31	65	42	25	89	62	31	30	Btm. 10 jt. are 7-5/8".
3	26	12	23	31	--	43	32	70	63	31	22	.760 wall, 12.78#/ft.
4	32	31	24	30	85	44	31	55	64	32	07	Fibercast pipe
5	32	41	25	31	87	45	31	35	65	31	50	Hal. Float shoe and
6	30	12	26	32	12	46	30	45	66	31	52	Float collar are installed
7	31	18	27	30	45	47	32	12	67	32	39	together on btm.
8	32	26	28	31	32	48	31	38	68	32	39	Hal. DV Pkr. between
9	32	19	29	32	05	49	31	26	69	32	47	Jts. 11 & 12.
10	30	75	30	32	40	50	32	94	70	30	09	Hal. DV stage tool between
Sub Tot.	313	47		950	50		1576	46		2209	67	Jts. 60 & 61
11	33	43	31 C	31	20	51 C	32	16	71	31	92	Hal. centralizers on collars
12 C	Pkr 3 32	75 --	32	31	13	52	33	28	72	32	14	of Jts. 12, 21, 31, 40, 51 &
13	32	20	33	32	10	53	32	36	73	31	68	111.
14	32	53	34	31	80	54	31	90	74	30	24	
15	31	80	35	32	28	55	31	62	75	31	55	
16	32	73	36	32	15	56	32	12	76	32	72	
17	32	73	37	31	45	57	32	92	77	31	90	
18	31	73	38	29	15	58	28	10	78	32	74	
19	26	37	39	31	61	59	31	93	79	31	58	Tally and job run by R. N. JOHNSON
20	32	15	40 C	31	23	60	29	46	80	32	76	
Sub Tot.	634	89		1264	60		1892	31		2528	90	

NOTE: All casing tallies are measured "threads off"

R. W. OBORN
Consulting Engineer

Co. CABOT CORP. Field TUSCOLA PLANT Well #2 Date 11/19/1975

Csg. Size_____ Wt._____ Gr._____ Range_____ Mfr._____ New or Used

Total csg. chg. to well_____ Run_____ Cut off or wasted_____ Trans._____ to _____

Hole Size_____ T.D._____ Csg. pt._____ KB to GL _____ KB to RT_____ Land. jt. below RT_____

Cent. Type_____ Depth_____

Scratchers Type_____ Depth_____

Fl. Equip. _____ Cem. Head _____

Cem. Type_____ Amt._____ Bulk_____ Cem. Sk Equip._____ Cem. Co._____

												Time	Truck	Truck	Notes
1	33	40	21	31	15	41	32	15	61	31	40				
2	32	05	22	28	40	42	30	05	62	31	40				
3	33	18	23	30	65	43	32	40	63	31	90				
4	30	68	24	31	70	44	32	10	64	30	45				
5	30	60	25	31	25	45	32	45	65	29	65				
6	31	98	26	32	30	46	31	90	66	32	05				
7	31	27	27	31	80	47	32	30	67	31	80				
8	32	30	28	30	64	48	32	75	68	31	90				
9	31	65	29	32	25	49	32	35	69	28	90				
10	31	10	30	32	30	50	29	40	70	30	90				
Sub Tot.	2847	11		3480	14		4120	92		4746	62				
11	31	87	31	32	--	51	28	85	71	31	55				
12	32	17	32	32	85	52	31	90	72	30	80				
13	32	30	33	33	05	53	31	55	73	28	90				
14	31	32	34	31	84	54	31	15	74	31	30				
15	31	95	35	32	53	55	32	05	75	33	50				
16	32	65	36	30	30	56	33	45	76	30	85				
17	33	58	37	31	50	57	32	25	77	29	67				
18	31	45	38	32	75	58	30	90	78	28	30				
19	31	85	39	33	26	59	31	95	79	4991	49				
20	31	45	40	32	85	60	31	30	80	26	50				
Sub Tot.	3167	70		3803	07		4436	27		5017	99				

Tally and job run by R. N. JOHNSON

NOTE: All casing tallies are measured "threads off"

R. W. OBORN
Consulting Engineer

Co. CABOT CORP. Field TUSCOLA PLANT Well #2 Date 1/21/1976

Csg. Size 4-1/2 Wt. 3.0 Gr. _____ Range 3 Mfr. Fibercast New XXXXXX
Total csg. chg. to well _____ Run _____ Cut off or wasted _____ Trans. _____ to _____

Hole Size _____ T.D. _____ Csg. pt. _____ KB to GL _____ KB to RT _____ Land. jt. below RT _____

Cent. Type _____ Depth _____

Scratchers Type _____ Depth _____

Fl. Equip. _____ Cem. Head _____

Cem. Type _____ Amt. _____ Bulk Cem. _____ Sk Equip. _____ Cem. Co. _____

	Ft.	In.		Ft.	In.		Ft.	In.		Ft.	In.	Time	Truck	Truck	Notes
1	20	2½	21	20	4	41	20	5	61	20	3				
2	20	4	22	20	3½	42	20	0	62	20	2				
3	20	4	23	20	1½	43	20	3½	63	20	5				
4	20	0	24	20	1½	44	20	4	64	20	4				
5	20	3½	25	20	2½	45	20	3½	65	20	1½				
6	20	3½	26	20	0	46	20	3	66	20	4½				
7	19	1	27	19	1	47	20	2½	67	20	4				
8	20	4½	28	19	10	48	20	4	68	20	4				
9	19	8	29	20	3½	49	20	3½	69	19	9				
10	19	11	30	19	3	50	20	3½	70	20	3½				
Sub Tot.	200	6		597	2½		1002	3½		1405	9				
11	20	3½	31	20	4½	51	19	8½	71	20	5				
12	20	5	32	20	2½	52	20	2	72	19	8				
13	20	1	33	20	4½	53	20	3½	73	20	5				
14	19	1½	34	20	4½	54	20	1	74	19	11				
15	19	6½	35	19	10	55	19	2	75	20	2				
16	19	9½	36	20	4½	56	20	1½	76	20	1				
17	19	4	37	20	3½	57	20	4½	77	20	5½				
18	19	4	38	20	2	58	20	5½	78	20	2½				
19	18	11	39	20	3	59	20	5	79	20	4				
20	20	4	40	20	1½	60	20	3½	80	20	3				
Sub Tot.	397	8		799	7		1203	4½		1607	8				

Tally by L. L. CREWS

NOTE: All casing tallies are measured "threads off"

R. W. OBORN
Consulting Engineer

Co. CABOT CORP. Field TUSCOLA PLANT Well #2 Date 1/21/1976

Csg. Size_____ Wt._____ Gr._____ Range_____ Mfr._____ New or Used

Total csg. chg. to well_____ Run_____ Cut off or wasted_____ Trans._____ to _____

Hole Size_____ T.D._____ Csg. pt._____ KB to GL _____ KB to RT_____ Land. jt. below RT_____

Cent. Type_____ Depth_____

Scratchers Type_____ Depth_____

Fl. Equip. _____ Cem. Head _____

Cem. Type_____ Amt._____ Bulk_____ Cem. Sk Equip._____ Cem. Co._____

	Ft.	In.		Ft.	In.		Ft.	In.		Ft.	In.	Time	Truck	Truck	Notes
1	20	2½	21	20	3½	41	20	4½	61	20	3				
2	20	3½	22	20	3	42	20	3	62	20	2				
3	20	4½	23	20	3	43	20	4½	63	20	3				
4	20	2	24	20	3	44	20	3½	64	20	2½				
5	20	1	25	20	3½	45	20	4½	65	20	4				
6	20	3½	26	20	4	46	19	9	66	20	2½				
7	20	2½	27	19	10½	47	20	5	67	20	3				
8	20	3½	28	19	2	48	19	9½	68	20	2				
9	20	3½	29	20	4½	49	20	4	69	19	9				
10	20	4½	30	20	3	50	20	3	70	19	10½				
Sub Tot.	1810	3		2214	3½		2619	1/2		3022	9½				
11	20	3	31	20	3½	51	20	2½	71	19	1/2				
12	20	2½	32	20	3½	52	20	1	72	20	2½				
13	20	4½	33	20	1/2	53	20	5	73	20	3				
14	20	4	34	20	5	54	20	3	74	19	7				
15	20	1½	35	20	1½	55	20	3½	75	19	7				
16	20	4½	36	20	4	56	19	11	76	20	3½				
17	20	4	37	20	3	57	20	3	77	20	4				
18	20	3½	38	20	2	58	20	3½	78	20	2				
19	20	4	39	20	4½	59	20	2½	79	20	4				
20	20	1	40	20	3	60	20	4½	80	20	3½				
Sub Tot.	2012	11½		2416	10		2821	4		3222	10½				

Tally by

L. L. CREWS

NOTE: All casing tallies are measured "threads off"

R. W. OBORN
Consulting Engineer

Co. CABOT CORP. Field TUSCOLA PLANT Well #2 Date 1/21/1976

Csg. Size_____ Wt._____ Gr._____ Range_____ Mfr._____ New or Used

Total csg. chg. to well_____ Run_____ Cut off or wasted_____ Trans._____ to _____

Hole Size_____ T.D._____ Csg. pt._____ KB to GL _____ KB to RT_____ Land. jt. below RT_____

Cent. Type_____ Depth_____

Scratchers Type_____ Depth_____

Fl. Equip. _____ Cem. Head _____

Cem. Type_____ Amt._____ Bulk_____ Cem. Sk Equip._____ Cem. Co._____

	Ft.	In.		Ft.	In.		Ft.	In.		Ft.	In.	Ft	In		Notes
1	19	0	21	20	5	41	20	1/2	61	20	4	241	18	9	
2	19	9	22	20	2	42	20	4	62	19	10½	242	17	9½	
3	20	2½	23	20	1½	43	19	11	63	20	2	243	18	10	
4	20	4	24	20	2½	44	20	0	64	20	4	244	18	11	
5	20	3	25	20	1½	45	19	1	65	20	4	245	18	6½	
6	20	3	26	20	3	46	20	4	66	20	3	246	18	6½	
7	20	4½	27	20	2½	47	19	6	67	20	3	247	17	10	
8	20	4	28	20	3	48	20	4	68	20	5	248	18	11	
9	20	3½	29	20	3	49	20	4	69	20	3½	249	18	1	
10	20	2	30	20	4½	50	20	3	70	20	2½		4986	1/2	
Sub Tot.	3423	10		3828	3½		4229	8½		4635	0		2	0	Hgr.
11	20	0	31	20	2½	51	20	0	71	20	4		14	0	Below K.B.
12	19	9	32	20	2½	52	20	4	72	20	3½		5002	1/2	
13	20	4	33	19	1½	53	20	2½	73	18	0				
14	20	4	34	20	2	54	20	3½	74	17	3½				
15	20	4½	35	20	5	55	20	5	75	18	1½				
16	20	5	36	20	2½	56	20	5	76	16	3				
17	19	11	37	20	3	57	20	4½	77	18	6				
18	20	3½	38	20	2½	58	20	3	78	18	9				
19	20	5½	39	20	2	59	20	2½	79	18	8				
20	20	2½	40	20	4	60	20	4	80	18	7½				
Sub Tot.	3625	11		4029	7		4432	6½		4819	10				

Tally by

L. L. CREWS

NOTE: All casing tallies are measured "threads off"

R. W. OBORN
Consulting Engineer